Electronic TUBES

6BQ7-A—4BQ7-A—5BQ7-A

TWIN TRIODE

FOR VHF CASCODE AMPLIFIER APPLICATIONS

DESCRIPTION AND RATING

The 6BQ7-A is a miniature, medium-mu twin triode primarily designed for use as a cascode, radio-frequency amplifier in very-high-frequency television tuners. In this application, its performance is characterized by high gain and low noise figure. An internal shield provides isolation between the two triode sections.

Except for heater ratings, the 4BQ7-A and 5BQ7-A are identical to the 6BQ7-A. In addition, as a result of their controlled heater warm-up characteristic, they are especially suited for use in television receivers that employ series-connected heaters.

GENERAL

ELECTRICAL

Cathode—Coated Unipotential

	4BQ7-A	5BQ7-A	6BQ7-A	
Heater Voltage, AC or DC	4.2	5.6	6.3	Volts
Heater Current	0.6	0.45	0.4	Amperes
Heater Warm-up Time*	11	11		Seconds

Direct Interelectrode Capacitances†	Section 1		Section 2	
Grid to Plate	1.2		1.2	μμf
Input	2.6			μμf
Output	1.2			μμf
Heater to Cathode	2.6		2.6	μμf
Plate to Plate, maximum		0.01		μμf
Plate (Section 2) to Plate and Grid (Section 1), maximum		0.024		μμf
Plate to Cathode	0.12		0.12	μμf
Grounded-Grid Input			5.0	μμf
Grounded-Grid Output			2.2	μμf

MECHANICAL

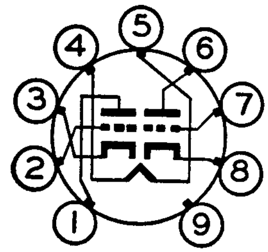
Mounting Position—Any
Envelope—T-6½, Glass
Base—E9-1, Small Button 9-Pin

MAXIMUM RATINGS

DESIGN-CENTER VALUES, EACH SECTION

Plate Voltage	250§	Volts
Plate Dissipation	2.0	Watts
DC Cathode Current	20	Milliamperes
Heater-Cathode Voltage		
Heater Positive with Respect to Cathode		
DC Component	100	Volts
Total DC and Peak	200	Volts
Heater Negative with Respect to Cathode		
Total DC and Peak	200§	Volts
Grid Circuit Resistance	0.5	Megohms

BASING DIAGRAM



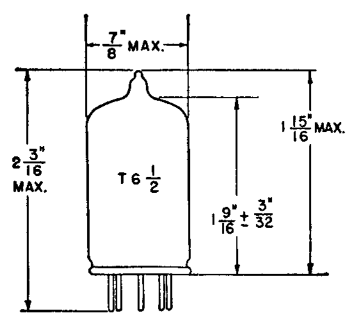
RETMA 9AJ

TERMINAL CONNECTIONS

Pin 1—Plate (Section 2)
Pin 2—Grid (Section 2)
Pin 3—Cathode (Section 2)
Pin 4—Heater
Pin 5—Heater
Pin 6—Plate (Section 1)
Pin 7—Grid (Section 1)
Pin 8—Cathode (Section 1)
Pin 9—Internal Shield‡

‡ It is recommended that pin 9 be grounded.

PHYSICAL DIMENSIONS



RETMA 6-2

CHARACTERISTICS AND TYPICAL OPERATION

CLASS A_1 AMPLIFIER, EACH SECTION

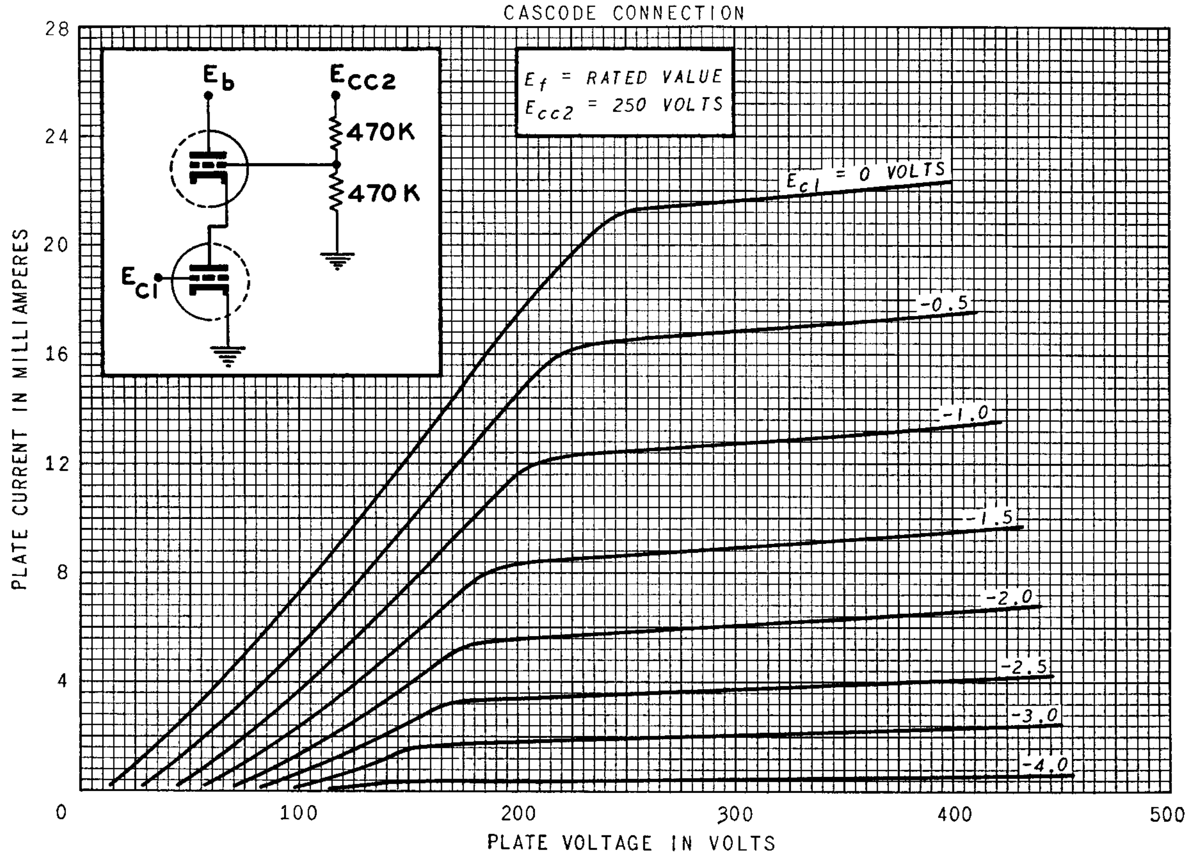
Plate Voltage	150	Volts
Cathode-Bias Resistor	220	Ohms
Amplification Factor	38	
Plate Resistance, approximate	5900	Ohms
Transconductance	6400	Micromhos
Plate Current	9.0	Milliamperes
Grid Voltage, approximate Ib = 100 Microamperes	−6.5	Volts

* The time required for the voltage across the heater to reach 80 percent of its rated value after applying 4 times rated heater voltage to a circuit consisting of the tube heater in series with a resistance equal to 3 times the rated heater voltage divided by the rated heater current.

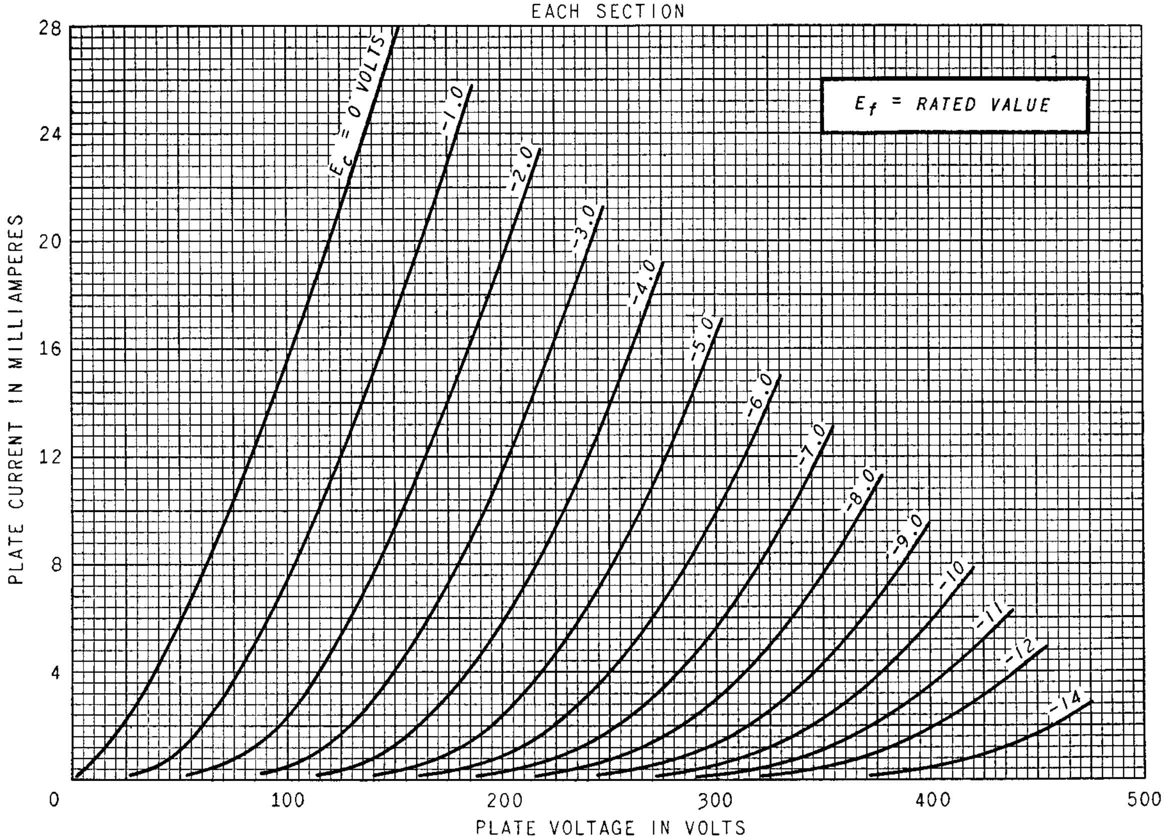
† With external shield (RETMA 315) connected to pin 9.

§ When the tube is used as a cascode amplifier and the two sections are connected in series, this voltage may be as high as 300 volts maximum under cutoff conditions.

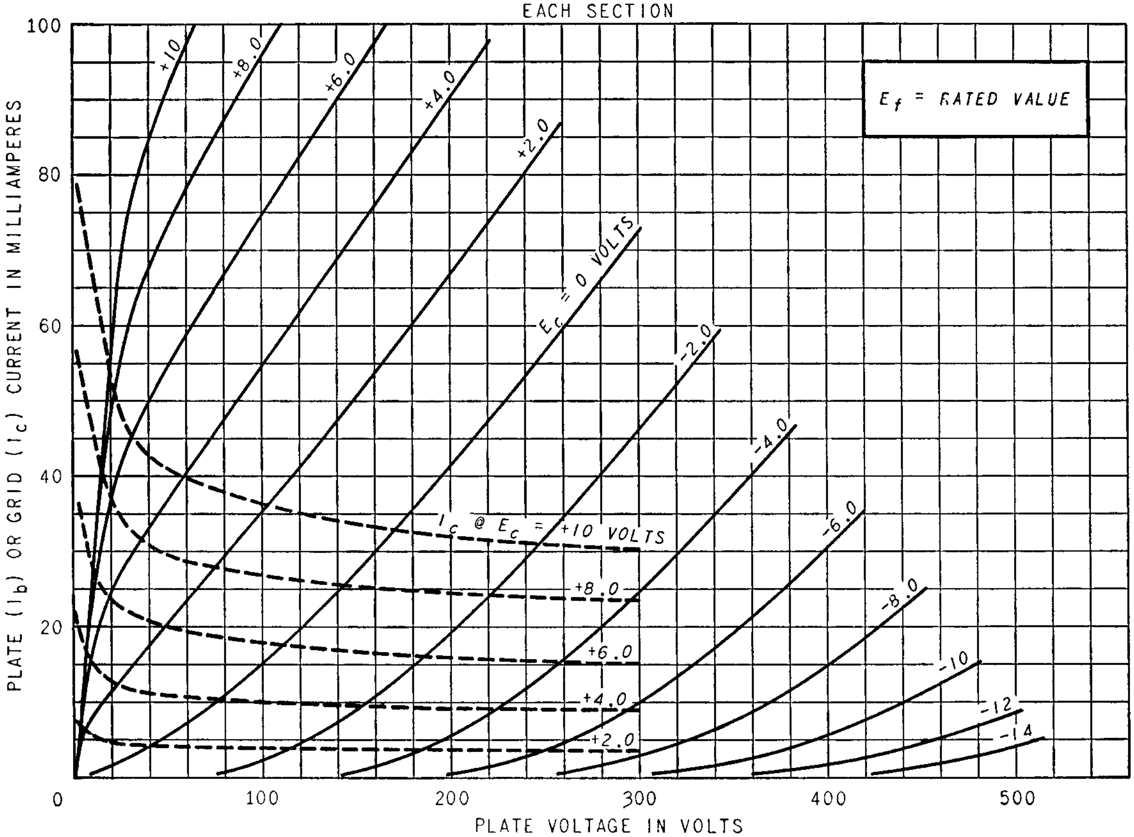
AVERAGE PLATE CHARACTERISTICS



AVERAGE PLATE CHARACTERISTICS
EACH SECTION

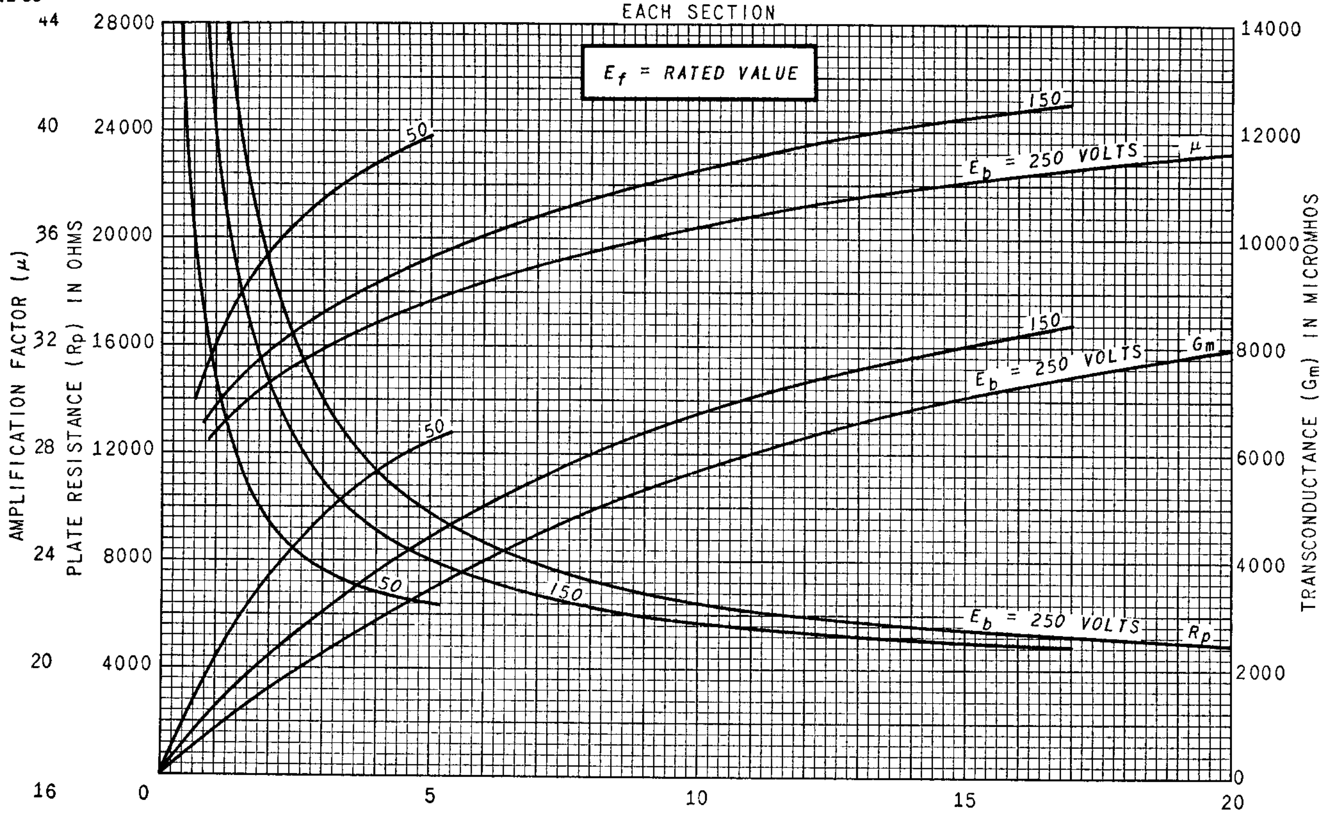


AVERAGE PLATE CHARACTERISTICS
EACH SECTION



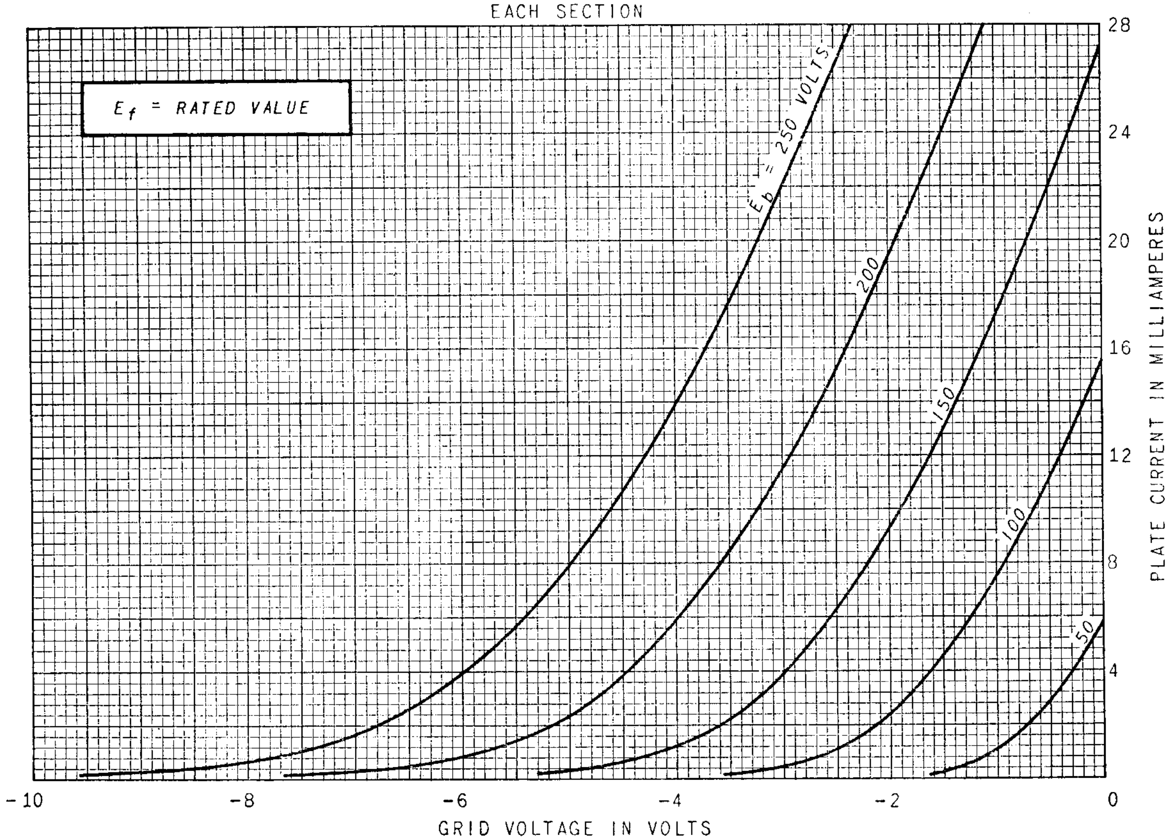
AVERAGE CHARACTERISTICS

EACH SECTION



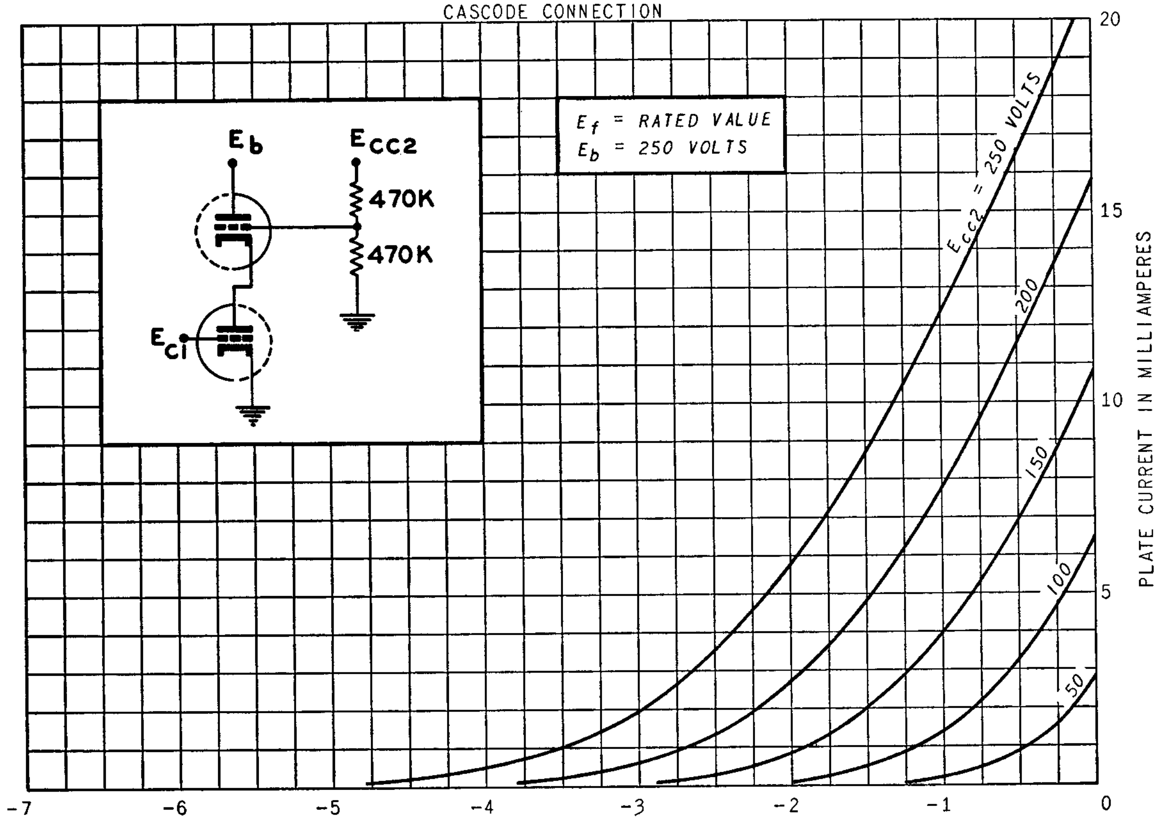
AVERAGE TRANSFER CHARACTERISTICS

EACH SECTION



AVERAGE TRANSFER CHARACTERISTICS

CASCODE CONNECTION



AVERAGE TRANSFER CHARACTERISTICS

CASCODE CONNECTION

